SHMUKLER, B.A., prof.; REZNIK, B.M.

Some problems in therapeutic and prophylactic aid to patients with tuberculosis of the organs of the genitourinary system. Sov.med. 25 no.6:126-129 Je '61. (MIRA 15:1)

1. Iz otdeleniya urogenital'nogo tuberkuleza (zav. - prof. B.A.Shmukler) Odesskogo nauchno-issledovatel'skogo instituta tuberkuleza (dir. M.A. Brusnikin).
(GENITOURINARY ORGANS—TUBERCULOSIS)

SHMUKLER, B.A., prof.

Role of tomography in roentgen diagnosis of tuberculosis of the kidney. Probl.tub. 39 no.1:98-100 '61. (MIRA 14:1)

1. Iz urologicheskogo otdeleniya (zav. - prof. B.A. Shmukler) Odesskogo nauchno-issledovatel'skogo instituta tuberkuleza (dir. M.A. Brusnikin).

(KIDNEYS--TUBERCULOSIS)

SHMUKLER, B.A., prof.; KUKLOV, B.S.

Neurohumoral shifts in tuberculosis of the urogenital system. Urologiia 27 no.4:17-20 Jl-Ag '62. (MIRA 15:11)

1. Iz laboratorii klinicheskoy fiziologii (zav. - L.B. Aksel'rod) i urologicheskoy kliniki (zav. - prof. B.A. Shmukler) Odesskogo nauchno-issledovatel'skogo instituta tuberkuleza.
(GENITOURINARY ORGANS---TUBERCULOSIS) (NEUROCHEMISTRY)

SHMUKLER, B.A., prof.

Renal tuberculosis in children and adolescents. Pediatriia 42 no. 9:78-82 S'63. (MIRA 17:5)

1. Iz urologicheskogo otdeleniya (rukovoditel'-prof. B.A. Shmukler) Odesskogo nauchno-issledovatel'skogo instituta tuberkuleza (direktor M.A. Brusnikin).

DIREKTOR, A. YA.: LUKEYEV, V.V.: TSYGANKOV, S.P.: SHMUKLER, B.I.: [illegible]

Steam Boilers

Starting with a high-pressure uniflow boiler assembly with shaft mills. Elek. sta. 23 no. 8, 1952.

Monthly List of Russian Accessions, Library of Congress, November 1952, UNCLASSIFIED

SEROV, Ye.P.; SHMUKLER, B.I.

[Operation of once-through steam boilers] Ekspluatatsiia priamotochnykh kotlov. Moskva, Gos. energ. izd-vo, 1953. 266 p. (MLRA 6:10)
(Steam boilers)

SHMUKLER, B. I.

Serov, Ye. P., and Shmukler, B. I., "Regulation of Forced Circulation Boilers," in their book Ekspluatatsiya pryamotochnykh kotlov [The Operation of Forced Circulation Boilers], Moscow/ Leningrad, Gosenergoizdat, 1953, Pages 154-183, with figures.

SHMUKLER, B.I.

AID P - 1505

Subject : USSR/Electricity

Card 1/1 Pub. 26 - 1/36

Authors : Luneyev, V. V., Eng and Shmukler, B. I., Eng.

Title : The firing of once-through boilers

Periodical : Elek. sta., 3, 1-6, Mr 1955

Abstract : The authors emphasize the quick-starting and stopping characteristic of the once-through boilers of the forced-flow type. The ignition is relatively simple, but is is necessary to watch closely the stability of evaporation. This condition is provided for in serial high-pressure boilers of the 67-SP-230/100 type. The initial pressure should be at least 25 to 30 atm. 6 diagrams

Institution: None

Submitted : No date

DAVIDOV, A.A., inzhener; SHMUKLER, B.I., inzhener; ZHIVOTOV, A.P., inzhener; RAKOV, K.A., kandidat tekhnicheskikh nauk.

Dynamic characteristics of once-through-type boilers. Teploenergetika 3 no.11:19-25 N '56. (MLRA 9:12)

1. Moskovskoye otdeleniye Kotloturbinnogo instituta i Vsesoyuznyy tepoltekhnicheskiy institut imeni Dzerzhinskogo.
(Boilers)

SHMUKLER, B. I. Mo TsKTI

"Problems of Putting Into Operation Turbines of Super-critical Steam Parameters."

The Commission for High-parameter Steam of the Energeticheskiy institut (Power Institute) imeni G. M. Krzhizhanovskogo AN SSSR held a conference on May 16, 1958 devoted to new types of equipment for block-assembled power stations, operating at super-critical steam parameters. This paper was read at this conference.

Izv. Akad Nauk SSSR, Otdel Tekh nauk, 1958, No. 7, p. 152

DIREKTOR, Bentsian Yakovlevich; LUNEYEV, Vasiliy Vladimirovich; SHMUKLER, Boris Isaakovich; FLAKSERMAN, Yu.N., red.; LARIONOV, G.Ye., tekhn.red.

[Operation of once-through boilers] Ekspluatatsiia priamotochnykh kotlov. Moskva, Gos.energ.izd-vo, 1959. 270 p. (MIRA 12:12)
(Boilers)

SOV/96-59-3-2/21

AUTHOR: Shmukler, B.I., Engineer

TITLE: The Thermal Circuit of a Once-Through Boiler-Turbine Unit (Teplovaya skhema bloka pryamotochnyy kotel-turbina)

PERIODICAL: Teploenergetika, 1959, Nr 3, pp 8-15 (USSR)

ABSTRACT: During start-up of a once-through boiler, the feed-water flow must be maintained at about 30% of the rated value. When several boilers are in parallel the time required to start up a once-through boiler from cold is only about 40 minutes so that the losses of heat and condensate are small: whereas for a boiler and turbine installed as a unit many hours are required to run up the turbine. If during this time the boiler runs with 30% rated steam output, of which only a small part is delivered to the turbine, the losses of condensate and heat are considerable. There is no special difficulty in conserving the condensate. In order to reduce heat losses it is important to be able to start up a once-through boiler with gradually increasing steam output corresponding to the turbine requirements. Moreover, the turbine run-up time can be much reduced if it is

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started at the same time as the boiler is lit. The difficulty is to maintain steady flow conditions in the boiler whilst the turbine is being started. This difficulty prompted the development of the special separator circuit for starting-up; a schematic diagram is given in Fig.1. The circuit uses a start-up separator which separates the evaporative and superheater parts of the boiler. By this means the appropriate flow of water can be maintained in the evaporative part with gradually increasing flow through the superheater. The principles of operation of the arrangement are described. The idea was used in the development of the thermal circuit of a unit-type set, consisting of a once-through boiler type PK-33 83 SP 640/140 with a steam output of 640 tons per hour, and a turbine type PVK-200 of 200 MW. Two variants of the thermal circuit were developed. The simpler circuit, illustrated in Fig.2, is first described. It allows the boiler and turbine to be started up simultaneously. The account of the method of starting mentions that during the starting process the steam temperature can be reduced by water injections and states

that the thermal losses are very small. It is calculated that simultaneous starting of the given turbine and boiler in this way economises about 500 tons of conventional fuel per start. Cooling of the superheaters is perfectly reliable during starting from cold, as is shown by experience at Nesvetay Regional Power Station and elsewhere. However, when the set is started from a hot condition special measures may be required to cool the reheater. The reasons for this are explained. Analysis of the reliability of cooling of the reheater is also of interest during variable load conditions, particularly when load is dropped suddenly. When this occurs it is necessary to shut down the fuel mills. It is a defect of the simple circuit described that the set must be shut down if the load suddenly falls to less than 20% of the rated value and in particular if the generator becomes disconnected from the system. With the second variant of the thermal circuit, a schematic diagram of which is given in Fig.3, the set can be kept in service during sudden load changes. The additional equipment

required for this purpose is described. Some of the features of this circuit are to provide for opening the governor valve of the high and medium-pressure turbines in the sequence adopted by the Leningrad Metal Works and illustrated in Fig.4. The method of operation is explained. Although the second circuit permits the set to run even at no-load, such flexibility is rarely necessary. There is not much advantage in being able to run the set at no-load because the time required to clear the fault is usually commensurate with the time required to start up from the hot condition: also the pipework is somewhat more complicated than in the simpler circuit. Accordingly, the Technical Council of the Ministry of Power Stations of the USSR has recommended the simplified thermal circuit for the first sets installed in large power systems. When large boiler-turbine units are installed in small power systems it is obviously desirable to be able to keep the set running when load is suddenly dropped and in this case the more complicated circuit is

SOV/96-59-3-2/21

The Thermal Circuit of a Once-Through Boiler-Turbine Unit

used. Test results illustrating a sudden stop and restart of an experimental boiler are plotted graphically in Fig.6. There are 6 figures, 1 table and 4 Soviet references.

ASSOCIATION: MOTsKTI (Moscow Division of the Central Boiler-Turbine Institute)

Card 5/5

LUNEYEV V.V., inzh.; SHMUKLER, B.I., inzh.

Experience in operating through-type boilers equipped with shaft-mill furnaces [with summary in English]. Teploenergetika 6 no.1:3-9 Ja '59. (MIRA 12:1)

1. Moskovskoye otdeleniye TSentral'nogo nauchno-issledovatel'skogo kotloturbinnogo instituta.
(Boilers)

SHMUKLER, B.I., inzh.

Thermal system of the uniflow boiler and turbine unit [with summary in English]. Teploenergetika 6 no.3:8-15 Mr '59. (MIRA 12:4)

1. Moskovskoye otdeleniye TSentral'nogo nauchno-issledovatel'skogo kotloturbinnogo instituta.
(Boilers) (Steam turbines)

PETROV, Petr Alekseyevich; SHMUKLER, B.I., red.; VORONIN, K.P., tekhn.red.

[Hydrodynamics of once-through boiler] Gidrodinamika priamotochnogo kotla. Moskva, Gos.energ.izd-vo, 1960. 167 p. (MIRA 13:5)

(Boilers--Hydrodynamics)

LOGUNOV, Feofan Georgiyevich; SHMUKLER, B.I., red.; VORONIN, K.P., tekhn.red.

[Walling-up of boiler units] Obmurovka kotel'nykh agregatov. Moskva, Gos.energ.izd-vo, 1961. 391 p. (MIRA 14:6)

(Boilers) (Bricklaying)

DUMER, Abram Bentsionovich; KNORRE, G.F., zasl. deyatel' nauki i tekhniki, doktor tekhn. nauk, prof., red.[deceased]; SHMUKLER, B.I., red.; LARIONOV, G.Ye., tekhn. red.

[Mechanisms of furnace systems] Mekhanizmy topochnykh ustroistv. Pod red. G.F.Knorre. Moskva, Gosenergoizdat, 1963. 254 p. (MIRA 16:5)

(Furnaces) (Boilers)

PETROSYAN, R.A., kand. tekhn. nauk; SHVARTS, A.L., kand. tekhn. nauk;
BULGAKOVA, N.V., inzh.; SHMUKLER, B.I., inzh.; DEMB, E.P., inzh.

Study of the sliding start conditions of a cold PK-33 once-through type boiler unit with nondraining shield-type superheater.
Teploenergetika 10 no.9:19-25 S '63. (MIRA 16:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy teplotekhnicheskiy institut im. Dzerzhinskogo i zavod imeni Ordzhonikidze.
(Boilers)

[illegible], [illegible], doktor tekhn. nauk; KAGAN D.Ya., kand. tekhn. nauk; [illegible], [illegible], inzh.; [illegible], [illegible], [illegible]

Protection of the heavy duty boiler units using nitrogen. Teploenergetika 12 no.3:17-21 Mr '65. (MIRA 18:6)

1. Vsesoyuznyy teplotekhnicheskiy institut.

MOSEYEV, G.I., kand. tekhn. nauk; PETROSYAN, R.A., kand. tekhn. nauk;
SHMUKLER, B.I., kand. tekhn. nauk; KUROCHKINA, F.L., inzh.

Cooling conditions of a once-through type PK-33 boiler and steampipes of a 200 Mw. block. Teploenergetika 12 no.8:12-17 Ag '65. (MIRA 18:9)

1. Vsesoyuznyy teplotekhnicheskiy institut.

SIDOROV, V.A., inzhener; SHMUKLER, G.E., inzhener.

Automatic photoelectric apparatus for controlling outdoor lighting. Energetik 4 no.9:34-36 S '56. (MLRA 9:10)
(Electric lighting) (Photoelectric cells)

SIDOROV, V.A.; SHMUKLER, G.E.

Automatic feeding in hot-water heating systems. Vod. i san. tekh. no.10:33-35 O '56. (MLRA 10:2)

(Hot-water heating)

SIDOROV, V.A., inzhener; SHMUKLER, G.E., inzhener.

Automatic feeder for hot-water heating systems. Gor. khoz. Mosk. 30 no.7:31-32 Jl '56. (MLRA 9:10)

(Hot-water heating)

SIDOROV, V.A.; SHMUKLER, G.M.

Device for winding resistance coils. Priborostroenie no.2:24-25 F '57.
(Resistance-coil) (MLRA 10:4)

SHMUKLER, G.E.

New system of automatic temperature control in heated rooms.
Vod. i san.tekh. no.3:21-24 Mr '59. (MIRA 12:2)
(Hot-water heating--Regulators)

SHMUKLER, I.S., inzh.; KARPENSKIY, V.K., inzh.

Calculation of concrete columns for dry current limiting reactors. Elektrotekhnika 36 no.5:32-35 My '65. (MIRA 18:5)

KARPENSKIY, A.K., inzh.; STERNIN, V.G., inzh.; SHMUKLER, I.Z., inzh.

Groupings of current limiting reactors. Elek. sta. 34 no.8: 54-57 Ag '63. (MIRA 16:11)

PROCESSES AND PROPERTIES INDEX

1X

17

Investigation on the expansion of coke-oven silica brick. G. V. Kukolev and K. Shmukler. *Ogneupory* 2, No. 8, 9-13(1934).—The dilatometric and cathetometric methods usually used do not give reliable data at temps. of 1000-1300°, because the transformations of quartz (tridymite and cristobalite) go on relatively slowly at these temps. The following new method is described. Expansion curves up to 750° are obtained with a differential Schevenaer dilatometer; for higher temps. samples are cut out and burned at 1235°, 1270° and 1350° for 20-22 hrs. Sp. wts. can be used to control expansion properties of silica brick used for coke ovens. E. E. S.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

SHMUKLER, K. M.

Budnikov, P. P., and Shmukler, K. M. CHEMICALLY RESISTANT REFRACTORY MATERIAL FOR KILNS PRODUCING SODIUM SULFIDE. *J. Applied Chem.* (U.S.S.R.), 12, 307-70 (1939).—The authors investigated grog brick prepared in the usual way and a forsterite brick obtained from a batch consisting of dunite calcined at 1450°, caustic magnesite, and molasses, mixed with a 12.5°Bé. solution of $MgCl_2$ and calcined at 1500° to 1600°. Forsterite brick possesses a high resistance to Na_2S melts and should be regarded as the best refractory material for kilns producing this chemical.

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

CA

19

Refractory magnesia-containing cement. D. A. Nirenshtein and K. M. Shmukler. *Ogneupory* 1940, No. 1, 23-9; *~~Khim. Referat. Zhur.~~* 1940, No. 8, 93.—Moisture-resistant, highly refractory clinker consisting mainly of $3CaO.SiO_2$ and periclase was produced by calcining the constituents at 1800° for 2-3 hrs. Fe-contg. clay and tripoli may be added. W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND LETTER

AUTHOR INDEX

2ND LETTER

3RD AND 4TH ORDERS

Fe GROUPS

MATERIALS INDEX

METALLURGICAL LITERATURE CLASSIFICATION

R

Nirenshtein, D. A., and Shmukler, K. M. HIGHLY REFRACTORY DOLOMITE PRODUCTS WITH A WATERY BOND FROM CLINKER OBTAINED BY MEANS OF THE SYNTHESIS OF TRICALCIUM SILICATE. *Ogneupory*, 8 [1] 23-28 (1940).—The manufacture of highly refractory dolomite products from clinker was accomplished by direct synthesis of tricalcium silicate from dolomite with the addition of natural raw materials containing alumina and silica. The results show the possibility of producing moisture-resistant dolomite clinker which is basically composed of tricalcium silicate and periclase. The purest dolomite should be used, and it should not contain more than 3.5% SiO_2 and not more than 6% of the total of SiO_2 + R_2O_3. Diatomite and clays containing Fe are recommended as admixtures.

PROCESSES AND PROPERTIES INDEX

1ST AND 2ND ORDERS

SHMUKLER, K.M.

~~BUDNIKOV, P. P.~~

Effect of mineralizers on the process of mullitization of clays, kaolins, and synthetic masses. P. P. Budnikov and K. M. Shmukler. Zhur. Priklad. Khim., 19 /10-11/ 1029-36 (1946).--The authors investigated the mullitization of shapes having clay and kaolin base mixes and other synthetic mixes. Samples were taken at 100°C. intervals between 1000° and 1600°C. with holding periods of 1, 3, and 18 hr. The amount of mullite formed was determined by dissolving each sample in 20% HF and quantitatively examining the residue by X-ray diffraction and with the microscope. Results indicate that (1) between 1000° and 1200°C. the amount of mullite increases sharply owing to the formation of a liquid phase in this interval, most of the mullite being formed at about 1200°C.; (2) the amount of mullite formed within 1200° to 1500°C. is a linear function of the temperature; and (3) the amount formed during a holding period is expressed by $u = a \log t + b$, where u is the percentage of mullite insoluble in 20% HF, t is the holding time (min.), and a and b are constants. In most cases the amount of mullite formed was 7 to 9% below the maximum possible from the chemical composition. In studying the effect of mineralizers, compounds were selected having elements with different values of r/e, where r is the radius of the ion and e is its charge. The addition of mineralizers lowers by 100° to 200°C. the temperature at which mullite formation starts. The effectiveness of mineralizers in decreasing order is as follows: (a) a 1400°C., 2 MnO, 1 $MgCl_2$, 2 TiO_2, 4% CaF_2; (b) at 1500°C., 2 MnO, 2 TiO_2, 4 Cr_2O_3, 4 $MgCl_2$, 4 $Fe(OH)_3$, 2% $CuCl_2$; (c) at 1600°C., 2 MnO, 2 TiO_2, 4 $MgCl_2$, 4% LiCl. Maximum mullite formation of 55.2% was obtained by the addition of 2% MnO to a charge fired at 1450°C. For each mineralizer

a rise in firing temperature caused a reduction in the amount of Al_2O_3 relative to that of mullite. It is possible to obtain a mullite refractory suitable for blast-furnace use by the addition of 2% MnO (4% $MnSO_4$) to a charge consisting of clays and kaolins with calcined alumina in proportions that will insure a complete mullite refractory by firing at 1500° to 1600°C. The MnO will not favor carbon deposition within the brick. B.Z.K.

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

CA

19

Effect of mineralizers on the formation of mullite in clays, kaolins, and synthetic masses. P. P. Budnikov and K. M. Shmukler. *J. Applied Chem.* (U.S.S.R.) 19, 1020–30(1946)(in Russian).—The amt. of mullite formed at 1000–1600° for 1, 3, and 18 hrs. was detd. by dissolving in 20% HF, by x-rays, and microscopically. With clays mullite formation becomes significant above 1000°; Kirov clay (SiO_2 44.66, Al_2O_3 38.77, Fe_2O_3 1.00, TiO_2 0.82, CaO 0.83) heated for 3 hrs. at 1100, 1200, 1500°, showed 31, 38, 47% mullite. At const. temp., the amt. of mullite $x = a \log \tau + b$, where τ = time in min., a and b are consts. depending on the temp.; the max. x reached was 7–15% below the theoretically possible max. (40–50%). Among the mineralizers investigated (feldspar, H_3BO_3, $BaCl_2$, $CuCl_2$, TiO_2, NH_4VO_3, $MgCl_2$, $MnSO_4$, $Fe(OH)_3$), addns. of 4% $MnSO_4$, 4% $CuCl_2$, 4% $MgCl_2$ proved most effective; in the latter case, 6% had less effect. The addn. lowers the temp. of the beginning of mullite formation by 100–200°. In mixts. of SiO_2 + Al_2O_3, held at the specified temp. 3 hrs., the formation of mullite was max. at all temps. in the presence of 2% MnO (4% $MnSO_4$); thus, in a mixt. of SiO_2 28.2, Al_2O_3 71.8, at 1300, 1400, 1500, 1600°, the residual corundum was 30–35, 15, 10, 5%, resp.; the order of decreasing effectiveness of mineralizer addns. was: at 1400°, 4% $MnSO_4$, 1% $MgCl_2$, 2% TiO_2, 4% CaF_2; at 1500°, 4% $MnSO_4$, 2% TiO_2, 4% Cr_2O_3, 4% $MgCl_2$, 4% $Fe(OH)_3$, 2% $CuCl_2$; at 1600°, 4% $MnSO_4$, 2% TiO_2, 4% $MgCl_2$, 4% LiCl.

N. Thon

COMMON ELEMENTS

MATERIALS INDEX

OPEN

COMMON VARIABLES INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

SHMUKLER, E. M.

Distr: 4E4j/4E2c

Chrome-magnesite roofs of open-hearth furnaces. A. S. Frenkel, E. Z. Slonimskaya, K. M. Shmukler, and E. S. Reyzina. *Sbornik Nauch. Trudov Vsesoyuz. Nauch.-Issle.* [illegible] 1955 [illegible] *Referat* [illegible] insure min. shrinkage and high resistance toward Fe oxides, the raw materials should contain not more than 20% of chromite; the chromite should be high in Cr_2O_3 and low in Al_2O_3, the unburned brick should be of high [illegible] the firing temp. high. [illegible] Rustoff

FRENKEL', A.S.; SHMUKLER, K.M.

High resistance magnesite-chrome crown bricks. Ogneupory 21 no.8: 337-344 '56. (MLRA 10:2)

1. Khar'kovskiy institut ogneuporov.
(Firebrick)

137-58-6-11407

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 23 (USSR)

AUTHORS: Frenkel', A.S., Shmukler, ~~K.M.~~

TITLE: Increasing the Service Life of Magnesite-chromite Roof Brick (Povysheniye stoykosti svodovogo magnezitokhromitovogo kirpicha)

PERIODICAL: Byul. nauchno-tekhn. inform. Vses. n.-i. in-t ogneuporov, 1957, Vol 2, pp 39-45

ABSTRACT: Bibliographic entry. Ref. RzhMet, 1957, Nr 7, abstract 11535

1. Refractory materials--Processing

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80316

SOV/81-59-7-24149

15.2210

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 7, p 348 (USSR)

AUTHORS: Frenkel', A.S., Shmukler, K.M., Minkovich, B.D.

TITLE: High-Alumina Articles on the Base of Commercial Alumina

PERIODICAL: Sb. nauchn. tr. Vses. n.-i. in-ta ogneuporov, 1958, Nr 2 (49), pp 100 - 158

ABSTRACT: The results were laid down of investigations on the problem of obtaining dense high-alumina products for lining the reservoir of bath furnaces intended for melting heavy-duty boro-silicate glasses. It was established that: 1) An increase in the dispersion of commercial alumina which was burnt at 1,550°C (in briquets) considerably improves sintering. 2) The introduction of 1% of caustic magnesite into the charge decreases the sintering temperature of chamotte by 100°C, decreasing its refractoriness by 20°C only. 3) In the case of burning in a revolving furnace, it is possible to obtain sintered chamotte even at an Al_2O_3 content of up to 90%, but in this case material is lost with the waste gases. Preliminary calcination of the

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High-Alumina Articles on the Base of Commercial Alumina

briquet at 600°C with a holding time of 4 hours reduces the loss by ~4 times. 4) The porosity of high-alumina products from the charge with 2% binding clay or without it, in the case of application of granulated chamotte, decreases approximately twice. 5) A favorable effect on the sintering of high-alumina products is obtained by the replacement of clay in their charge by thin chamotte fractions. 6) The growth of mullite-corundum products in burning is the result of the formation of mullite from corundum and clay. 7) The properties of high-alumina products, even in the case of their equal final porosity, are different if the porosity of the raw material is different. If at high burning temperatures dense products are obtained from a raw material with increased porosity, a large number of shrinkage cracks are formed between the grains of the chamotte and the binding material, which decreases the resistance of the products to aggressive melts of low viscosity. 8) The application of high-density raw material, especially in the case of introducing granulated chamotte with a simultaneous increase in the content of its thin fractions, permits the burning of these products to be carried out even in furnaces on solid fuel at temperatures of the order of 1,450°C and does not require the

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High-Alumina Articles on the Base of Commercial Alumina

construction of special high-temperature furnaces for these purposes. The high resistance of dense (with a porosity below 12%) high-alumina refractories with a content of 65% Al_2O_3 was established by comparative tests of various types of refractories in the wall of glass-melting bath furnaces and by the investigation of worked-out refractories. In the inner lining of caissons dense products containing 76 - 80% Al_2O_3 were distinguished by good resistance in operation tests. In the upper checker rows of gas regenerators a dense high-alumina brick with a content of about 76% Al_2O_3 was distinguished by good resistance.

S. Tumanov

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15.2210
~~5(1)~~

68619

AUTHORS: Frenkel', A.S., Shmukler, K.M., Sukharevskiy, B.Ya., Gul'ko, N.V.

S/020/60/130/05/039/061
B011/B005

TITLE: On the Mechanism of Formation and Decomposition of Solid Solutions of Spinels in Periclase

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 130, Nr 5, pp 1095-1098 (USSR)

ABSTRACT: The purpose of this paper is an investigation of the mechanism mentioned in the title which has not yet been clarified sufficiently. The authors studied the interaction of periclase with spinels the cations of which are Mg^{2+}, Fe^{2+}, Al^{3+}, Cr^{3+}, and Fe^{3+}. X-ray-, chemical-, and petrographical investigations were carried out. The samples were quenched to fix the high-temperature state. The authors ascertained that there is a certain limiting concentration (Fig 1) for solid spinel solutions in periclase for every temperature. The roentgenograms of the solid solutions show the same system of lines as the roentgenograms of magnesium oxide. The lattice parameter of the solid solutions decreases with increasing concentration of the solutions (Fig 2). The solid spinel solutions in periclase

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On the Mechanism of Formation and Decomposition of Solid Solutions of Spinels in Periclase

S/020/60/130/05/039/061
B011/B005

are formed as a consequence of the substitution of magnesium ions by bivalent and trivalent spinel cations. This is confirmed by the authors by comparing the calculated (formula (1)) and experimentally found values of the lattice parameters of these solutions. Table 1 shows that these values lie very close to each other. The placing of the smaller trivalent ions instead of the magnesium ions in the hollow spaces of the octahedron causes a compression of the lattice and, thus, an increase in free lattice energy. The authors also derive rules of solubility in periclase for spinels of complex composition, or spinel mixtures. Solid spinel solutions in periclase are only stable at high temperatures. The solid solution decomposes on cooling. The concentration of the remaining solid solution corresponds to the saturated solution at this lower temperature (Fig 3). Decomposition of the solid solution begins on quenching in water, and is much intensified by quenching in oil. On the basis of the roentgenograms, the authors assume a subsequent decomposition mechanism of solid spinel solutions in periclase: at high R^{3+} concentrations, the supersaturation and the increase in free energy cause such a shift of ions within the elementary

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On the Mechanism of Formation and Decomposition of Solid Solutions of Spinels in Periclase

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cell by fractions of the period that some part of the ions adopt tetrahedral positions. It may be assumed that in very small regions such fluctuations are probable. Consequently, the formation of nuclei of the spinel phase is ensured by the number of occupied tetrahedral positions in these regions. This assumption was confirmed electron-microscopically as well as by the roentgenogram of the isolated miniature inclusions having a spinel structure. S.T. Balyuk took part in the work. There are 3 figures, 1 table, and 5 references, 2 of which are Soviet.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov (Ukrainian Scientific Research Institute of Refractories)

PRESENTED: July 25, 1959, by N.V. Belov, Academician

SUBMITTED: July 21, 1959

Card 3/3

FRENKEL', A.S.; SHMUKLER, K.M.; ANTONOV, G.I.; MINKOVICH, B.D.; SHAPOVALOV, V.S.

Use of synthetic forsterite brick for the checkerwork in open-hearth furnace gas regenerators. Sbor.nauch.trud. UNIIO no.5:168-180 '61. (MIRA 15:12)
(Firebrick) (Open-hearth furnaces—Design and construction)

SHMUKLER, M.I.

Postoperative formation of a fistula from the uterus to the abdominal wall. Akush. i gin. 34 no.3:107 My-Je '58. (MIRA 11:6)

1. Iz ginekologicheskogo otdeleniya Volkhovskoy gorodskoy bol'nitsy (i.o. glavnogo vracha M.I.Shmukler)
(FISTULA)

RODIONOV, N.S., inzh.; SHMUKLER, M.M.; TSVYLEV, I.S.

For a better utilization of the production capacities of peat briquet plant. Torf.prom. 27 no.6:16-19 '60. (MIRA 13:9)

1. Gipromestprom Gosplana RSFSR.
(Peat industry)

KARTAMYSHEV, A.I., kand.tekhn.nauk; SHMUKLER, M.M., inzh.; YAKUB, S.K., inzh.

Efficient routing of car flows on parallel lines. Zhel.dor. transp. 44 no.6:37-41 Je '62. (MIRA 15:8)
(Railroads--Management)

SHMUKLER, M.Ya.

Determining rail shortening in curb aligment. Put' i put. khoz. no.10:7 O '59. (MIRA 13:2)

1. Zamestitel' nachal'nika PDSM, g.L'vov.
(Railroads--Tracklaying)

DOROCHENKO, M.G.; SHMUKLER, M.Ya.; SAVCHENKO, Kh.; POTUPIN, A.M.

Our methods for welding and transporting long rail lengths. Put' i put.khoz. 4 no.11:20-23 N '60. (MIRA 13:12)

1. Nachal'nik RSP-16, st.Dublyany-Lyashki, L'vovskoy dorogi (for Dorochenko). 2. Priyemshchik, st. Lublyany-Lyashki, L'vovskoy dorogi (for Shmukler). 3. Glavnyy inzh.sluzby puti, g. L'vov (for Savchenko). 4. Starshiy inzh.sluzhby puti, g. L'vov (for Potupin). (Railroads--Rails)

MATYUKHINA, L.G.; SHMUKLER, V.S.; RYABININ, A.A.

Triterpenes of Alnus subcordata C. A. M. bark. Zhur. ob. khim. 35 no.3:579-580 Mr '65. (MIRA 18:4)

1. Botanicheskiy institut AN SSSR i Leningradskiy gosudarstvennyy universitet.

ZHOZHIKASHVILI, V.A. (Moskva); SHMUKLER, Yu.I. (Moskva)

Determination of the mean time of faultless operation of contactless remote control devices. Avtom. i telem. 23 no.7:932-937 Jl '62. (MIRA 15:9)

(Remote control)

ACC NR: AP6019566 (A) SOURCE CODE: UR/0080/66/039/006/1327/1332

AUTHOR: Shmukler, Yu. S.; Kuz'min, L. L.

ORG: Ivanovo Chemical Engineering Institute (Ivanovskiy khimikc-tekhnologicheskiy institut)

TITLE: Behavior of vanadium pentoxide in certain salt electrolytes

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 6, 1966, 1327-1332

TOPIC TAGS: vanadium pentoxide, ammonium salt, ammonium sulfate, electrolyte, electrode potential

ABSTRACT: The article presents data on the cathodic behavior of vanadium pentoxide in the aqueous electrolytes NH_4Cl, $(NH_4)_2SO_4$, $ZnSO_4$, NaCl, and $CaCl_2$. The best electrolyte for studying this behavior was found to be 4 N NH_4Cl. The following reactions are thought to occur at the electrode:

$$V_2O_5 + 2H^+ + 2e = V_2O_4 + H_2O,$$

$$V_2O_5 + 4H^+ + 4e = V_2O_3 + 2H_2O.$$

$$V_2O_4 + 2H^+ + 2e = V_2O_3 + H_2O.$$

Card 1/2 UDC: 546.881+541.13

MAKAREVICH-GAL'PERIN, L.M.; USHENKO, S.N.; VOLOVEL'SKIY, L.N.; SELICHENKO, A.G.; SHMUKLOVSKAYA, L.G.

Comparative study of the glycogen content in the liver and uterus under the influence of estrogens of antiblastic action. Trudy Ukr. nauch.-issl. inst. eksper. endok. 19:353-368 '64. (MIRA 18:7)

1. Iz otdela farmakoterapii Ukrainskogo instituta eksperimental'noy endokrinologii.

MAKAREVICH-GAL'PERIN, L.M.; USHENKO, S.N.; SHMUKLOVSKAYA, L.G.

Comparative study of the specific and nonspecific action of new mono- and diesters of estradiol. Farm. i toks. 25 no.4:472-478 Jl-Ag '62. (MIRA 17:10)

1. Ukrainskiy institut eksperimental'noy endokrinologii, Khar'kov.

SHMUKLYARSKIY, S.

Presses with open dies. Prom.koop. 13 no.9:23 S '59.
(MIRA 13:1)

1. Glavnyy inzhener Moskovskogo gorodskogo otdela Vsesoyuznozo obshchestva slepykh.
(Blind--Employment) (Dies(Metalworkings)--Safety measures)

SHMUL', S.P., kandidat meditsinskikh nauk

Nature of the refraction curve. Oft.zhur. 12 no.3:160-163 '57.
(MIRA 10:11)

1. Iz kafedry glaznykh bolezney (zav. - prof. A.I.Dashevskiy)
Dnepropetrovskogo meditsinskogo instituta.
(EYE--ACCOMMODATION AND REFRACTION)

SHMUL, S.P.

DASHEVSKIY, A.I., prof.; SHMUL', S.P.

Report on the work of the Dnepropetrovsk Ophthalmological Society for 1957. Oft.zhur. 13 no.8:499 '58. (MIRA 12:2)

1. Predsedatel' Dnepropetrovskogo oftal'mologicheskogo obshchestva (for Dashevskiy). 2. Sekretar' Dnepropetrovskogo oftal'mologicheskogo obshchestva (for Shmul').
(DNEPROPETROVSK--OPHTHALMOLOGICAL SOCIETIES)

DASHEVSKIY, A.I., prof.; SHMUL', S.P., kand.med.nauk

Report on the work of the Dnepropetrovsk Ophthalmological Society for 1958. Oft.zhur. 14 no.6:382-383 '59. (MIRA 13:4)

1. Predsedatel' pravleniya Dnepropetrovskogo oftal'mologicheskogo obshchestva (for Dashevskiy). 2. Sekretar' Dnepropetrovskogo oftal'mologicheskogo obshchestva (for Shmul').

(DNEPROPETROVSK--OPHTHALMOLOGICAL SOCIETIES)

Shmulenson, I.L

USSR/Optics - Optical Methods of Analysis. Instruments. K-7

Abs Jour : Referat Zhur - Fizika, No 3, 1957, 7964

Author : Kandler, N.V., Mitroshina, A.V., Shmulenson, I.L.

Title : Spectral Analysis of Magnesite and Linings of Open Hearth Furnace Using Solutions.

Orig Pub : Zavod. laboratorii, 1956, 22, No 4, 440-441

Abstract : In the determination of magnesium in magnesite and in the refractory linings of open hearth furnaces, the analyzed material is converted into a solution and placed in a porcelain vessel, into which the edge of a rotating copper disk is immersed, serving as the lower electrode of a condensed spark. The upper electrode is a carbon stick. The spectrum is photographed with the ISP-22 spectrograph with a step attenuator. To MgO in the lining is determined by photometric interpolation and the MgO in the magnesite is determined by the three-standard method. The analytic pair of lines is Mg 2790.8 A -- Mo 2780.04 A.

Card 1/2

SHMULENSON, L.; SHUTYY, I.

Simple method for an automatic watering of cows. Sel'. stroi. 12 no.8:21-22 Ag '57. (MLRA 10:9)

1. Starshiy inzhener Vinnitskogo oblastnogo upravleniya sel'skogo khozyaystva (for Shmulenson). 2. Starshiy mekhanizator po mekhanizatsii trudoyemnykh rabot v zhivotnovodstve Vinnitskoy mashinno-traktornoy stantsii (for Shutyy).
(Cattle--Watering)

SHMULENZON, B.; DASHKOV, Ye.

New techniques in planning. Zhil. stroi. no. 4:23-26 Ap '61.
(MIRA 14:5)
(Building--Technological innovations)

SHMULENZON, M.I.

New type of canned Don relish. Kons. i ov. prom. 13 no.7:13-14 Jl '58. (MIRA 11:6)

1. Rostovskiy-na-Donu konservnyy zavod "Smychka."
(Cookery (Relishes))

SHMULENZON, M.I.; PEREKISLOV, L.N.

Investigating several varieties of summer squash used in the food industry. Kons. i ov. prom. 13 no.7:32-33 Jl '58. (MIRA 11:6)

1. Rostovskiy-na-Donu konservnyy zavod "Smychka" (Shmulenzon).
2. Rostovskiy konservnyy trest (for Perekislov).
(Squash)

SHMULENZON, M.I.

Washing machine for fruits. Kons. i ov.prom. 15 no.9:14-15
S '60. (MIRA 13:9)

1. Rostovskiy konservnyy zavod "Smychka".
(Rostov--Fruit--Preservation)

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S/020/61/139/006/005/022
C111/C333

AUTHOR: Shmulev, I. I.

TITLE: Periodic solutions to boundary value problems without initial conditions in the case of quasilinear parabolic equations

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 139, no. 6, 1961, 1318-1321

X

TEXT: Theorem 1: In the strip $Q = \{0 \leqslant x \leqslant 1, -\infty < t < +\infty\}$ there exists acontinuous solution periodic in t with the period T of

$$u_t = a(x,t,u)u_{xx} + f(x,t,u,u_x), \quad u(0,t) = u(1,t) = 0 \qquad (I)$$

with continuous derivatives within Q (this concerns the derivatives occuring in (I)) if the following conditions are satisfied:

1. a(x,t,u) and f(x,t,u,0) satisfy the inequalities

$$a(x,t,u) \geqslant \alpha \quad (\alpha = \text{const} > 0)$$

$$\int_0^1 \frac{\partial f(x,t,\tau u,0)}{\partial u} d\tau \leqslant -c_0 \quad (c_0 = \text{const} > 0)$$

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Periodic solutions to boundary . . . S/020/61/139/006/005/022
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in $S_1 = \{0 \leq x \leq 1, -\infty < t < +\infty, -\infty < u < +\infty\}$.

2. $a(x,t,u)$ and $f(x,t,u,p)$ are continuous in $S_2 = \{0 \leq x \leq 1, -\infty < t < +\infty, -C_0 \leq u \leq C_0, -\infty < p < +\infty\}$ and there possess derivatives $\partial^{\nu} a/\partial x^{\nu_1} \partial u^{\nu_2}$, $\partial^{\mu} f/\partial x^{\mu_1} \partial u^{\mu_2} \partial p^{\mu_3}$ ($\nu = 1, \ldots, 4$; $\mu = 1, \ldots, 4$).

3. In S_2, $f(x,t,u,p)$ and its first derivatives with respect to x and u has an order of growth < 2 in p, while $\partial f/\partial p$ has an order of growth < 1 in p.

4. $a(x,t,u)$ and $f(x,t,u,p)$ are periodic in t with the period T.

Theorem 2: In Q there exists a solution continuous together with the first derivative with respect to x, and periodic in t with period T, of

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Periodic solutions to boundary . . .

$$u_t = a(x,t,u)\, u_{xx} + f(x,t,u,u_x),$$
$$u_x(0,t) = \varphi_1(t,u(0,t,)) \qquad \text{(II)}$$
$$u_x(1,t) = \varphi_2(t,u(1,t))$$

which possesses continuous derivatives (occurring in II) within Q if the following conditions are satisfied:

1. Conditions 1,3,4 of the theorem 1.

2. $a(x,t,u)$ and $f(x,t,u,p)$ are continuous in S_2 and have continuous derivatives of second order with respect to x, u, p which posses bounded derivatives of first order with respect to t,u,p.

3. $\varphi_1(t,u)$ and $\varphi_2(t,u)$ have continuous derivatives of second order with respect to u and of first order with respect to t in $S_3 = \{ -\infty < t < +\infty, -C_0 \leq u \leq C_0 \}$, and satisfy in S_3 the conditions:

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$$\frac{\partial \varphi_1}{\partial u} > 0, \ \frac{\partial \varphi_2}{\partial u} < 0, \ \varphi_1(t,0) = \varphi_2(t,0) = 0 \ .$$

X

4. $\varphi_1(t,u)$ and $\varphi_2(t,u)$ are periodic in t with the period T.
Theorem 3 contains a similar proposition of existence for the problem

$$\begin{aligned} u_t &= a(x,t,u)\, u_{xx} + f(x,t,u,u_x), \\ u_t(0,t) &= \varphi_1(t,u(0,t),\ u_x(0,t)), \qquad \text{(III)} \\ u_t(1,t) &= \varphi_2(t,u(1,t),\ (u_x(1,t)). \end{aligned}$$

In theorem 4 the case of the multidimensional equation

$$u_t = \sum_{i,j=1}^{m} a_{ij}(x,t,u) u_{x_i x_j} + \sum_{i=1}^{m} a_i(x,t,u) u_{x_i} + a(x,t,u) \quad (2)$$

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549810008-5"

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Periodic solutions to boundary . . . S/020/61/139/006/005/022 C111/C333

is treated. Let $Q = D \times (-\infty, \infty)$ denote a right cylinder with the lateral face S. The bounded m-dimensional domain $\overline{D}$ is assumed to belong to the class $A^{(2,\lambda)}$.

Theorem 4: For $(x,t) \in \overline{Q}$ and $u \in (-\infty, \infty)$ let

$$-\frac{\partial a(x,t,u)}{\partial u} \geqslant c_0 \quad (c_0 = \text{const} > 0); \tag{6}$$

$$\sum_{i,j=1}^{m} a_{ij}(x,t,u)\xi_i \xi_j \geqslant \alpha \sum_{i-1}^{m} \xi_i^2 \quad (\alpha = \text{const} > 0), \tag{7}$$

be satisfied; for $(x,t) \in \overline{Q}$ and $|u| \leqslant C_0$, where $C_0 > 0$ is a constant, let

$$\max_{(x,t,u)} \left| \frac{\partial a_{ij}(x,t,u)}{\partial u} \right| \leqslant \frac{\alpha e \sqrt{3}}{12\, mC_0}. \tag{8}$$

Assume that the functions $a_{ij}(x,t,u)$, $a_i(x,t,u)$ $a(x,t,u)$ and $a_u(x,t,u)$ are periodic in t with the period T, are continuous functions of

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(x,t,u) for $(x,t) \in Q$ and $|u| \leq C_0$ with bounded derivatives with respect to x,u up to the fourth order inclusively, and satisfy the Hölder condition in x,u. Then in $\overline{Q}$ there exists a continuous function $u(x,t)$ periodic in t with the period T which possesses within Q continuous derivatives occurring in (2), satisfies (2) in Q and satisfies the condition

$$u\big|_S = 0 \qquad (9)$$

on S.

The proofs of the theorems are based on the application of the difference method according to E. Rothe (Ref. 4: Math. Ann., 102, 650 (1930)), and on the estimation method of S. N. Bernshteyn (Ref. 6: DAN, 18, No. 7 (1938)). D. Kh. Karimov is metioned. The author thanks

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Periodic solutions to boundary . . .

O. A. Oleynik for the interest in his paper and S. G. Kreyn for discussion.

There are 6 Soviet-bloc and 6 non-Soviet-bloc references.

ASSOCIATION: Voronezhskiy lesotekhnicheskiy institut (Voronezh Forestry-Engineering Institute)

PRESENTED: April 8, 1961, by J. G. Petrovskiy, Academician

SUBMITTED: March 28, 1961

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Card 7/7

L 49457-65 EWT(d) IJP(c)

ACCESSION NR: AP5009422 S/0039/65/066/003/0398/0410

AUTHOR: Shmulev, I. I.

7 B

TITLE: Periodic solutions of the first boundary value problem 16 for parabolic equations

SOURCE: Matematicheskiy sbornik, v. 66, no. 3, 1965, 398-410

TOPIC TAGS: parabolic equation, partial differential equation, boundary value problem

ABSTRACT: Considered is the first boundary value problem in a cylinder Q:

$$Lu = f(x, t),$$
$$u|_S = \psi(x, t)$$

where $$L = \frac{\partial}{\partial t} - \sum_{i,j=1}^{m} a_{ij}(x, t)\frac{\partial^2}{\partial x_i \partial x_j} - \sum_{i=1}^{m} b_i(x, t)\frac{\partial}{\partial x_i} - c(x, t)$$

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L 49457-65

ACCESSION NR: AP5009422

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Existence theorems are proved for solutions periodic in time. Proofs of validity are given for estimates of periodic solutions under varying inequality conditions on the function $u(x,t)$, for which Hölder norms are defined. Similarly for the first boundary value problem of the quasilinear parabolic equation

$$\frac{\partial u}{\partial t}=\sum_{i,j=1}^{m}\frac{\partial}{\partial x_i}\left(a_{ij}(x,t,u)\frac{\partial u}{\partial x_j}\right)+b(x,t,u,u_x)$$

conditions are stated and proved for the existence of at least one solution periodic in time. The theorem is proved by use of the Leret-Schauder topological theorem on the existence of fixed points in operator equations. Orig. art. has: 75 formulas

ASSOCIATION: none

SUBMITTED: 07Dec63 ENCL: 00 SUB CODE: MA

NO REF SOV: 007 OTHER: 002

Card 2/2 CC

32422

S/020/61/141/006/004/021
C111/C333

16.3501

AUTHOR: Shmulev, J. J.

TITLE: Periodic solutions of boundary value problems deprived of initial conditions for parabolic equations

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 141, no. 6, 1961, 1313-1316

TEXT: Let D be a bounded m-dimensional domain of the space $x=(x_1, \ldots x_m)$, Γ -- boundary of D, $Q = D \times (-\infty, +\infty)$, S -- lateral face of Q; Q_T -- part of Q between $t = t_o$ and $t = t_o + T$, where $t_o \in (-\infty, \infty)$ and T is fixed, S_T -- lateral face of Q_T. Let denote

$$L \equiv \sum_{i,j=1}^{m} a_{ij}(x) \frac{\partial^2}{\partial x_i \partial x_j} + \sum_{i=1}^{m} b_i(x) \frac{\partial}{\partial x_i} + c(x)$$

where

$$\sum_{i,j=1}^{m} a_{ij}(x) \xi_i \xi_j \geqslant \alpha \sum_{i=1}^{m} \xi_i^2 \quad (\alpha = \text{const} > 0) \text{ and } a_{ij}(x) = a_{ji}(x).$$

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Periodic solutions of boundary . . .

Theorem 1: Assume that $\overline{D}$ belongs to the class $A^{(1,\lambda)}$. Let the coefficients of L in $\overline{D}$ satisfy the conditions:
$a_{ij}(x) \in C^{(1,\lambda)}$, $b_i(x) \in C^{(0,\lambda)}$, $c(x) \in C^{(0,\lambda)}$, $-c(x) \geqslant c_0$ (c_0=const > 0). Assume that the functions $f(x,t)$, $\varphi(x,t)$ periodic in t with period T satisfy the conditions: $f(x,t)$ is continuous in Q together with the timely derivatives up to the 4-th order inclusively and is continuous in $x \in D$ according to Hölder with exponent λ; $\varphi(x,t)$ is continuous on S together with the four first derivatives with respect to t. Under the given conditions there exists a unique solution periodic and regular in t with period T of the boundary value problem

$$u_t = Lu + f(x,t); \qquad (1)$$

$$u\big|_S = \varphi(x,t). \qquad (2)$$

The author considers periodic solutions of the first boundary value problem

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$$\frac{\partial u}{\partial t} - \sum_{i,j=1}^{m} \frac{\partial}{\partial x_i} \left(a_{ij}(x,t) \frac{\partial u}{\partial x_j}\right) + c(x,t)\, u - f(x,t) = 0 \qquad (9)$$

$$u\big|_S = 0, \qquad (10)$$

where

$$\sum_{i,j=1}^{m} a_{ij}(x,t)\,\xi_i \xi_j \geqslant \alpha \sum_{i=1}^{m} \xi_i^2 \quad (\alpha = \text{const} > 0) \text{ and } a_{ij}(x,t) = a_{ji}(x,t)$$

Definition: As a weak periodic solution with period T of problem (9) - (10) the author denotes a function u(x,t) which satisfies the demands: 1.) If $t_o \in (-\infty, +\infty)$, then

$$u(x, t_o + T) = u(x, t_o) \qquad (11)$$

for almost all $x \in D$; 2.) $u(x,t) \in \overset{o}{W}{}_2^1 (Q_T)$; 3.) For every function

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$\Phi(x,t) \in \overset{C}{W}{}_2^1 (Q_T)$ periodic in t with period T, $u(x,t)$ satisfies the identity

$$\int\limits_{Q_T}\left(\frac{\partial u}{\partial t}\Phi + \sum_{i,j=1}^{m} a_{ij}\frac{\partial u}{\partial x_i}\frac{\partial \Phi}{\partial x_j} + cu\Phi - f\Phi\right) dt\,dx = 0 \qquad (12)$$

Theorem 2: Let the boundary Γ of D be (m+3)-times continuously differentiable, let the coefficients of (9) and $f(x,t)$ be periodic in t with period T and possess in Q the properties:
1.) $a_{ij}(x,t)$ and $\partial a_{ij}/\partial t$, $\partial^k a_{ij}/\partial x_1^{k_1} \ldots \partial x_m^{k_m}$ $(k=1,\ldots, m+2)$ are continuous; 2.) $c(x,t)$ and $\partial c/\partial t$, $\partial^k c/\partial x_1^{k_1} \ldots \partial x_m^{k_m}$ $(k=1,\ldots,m)$ are continuous and $c(x,t) \geqslant c_o$, where c_o = const > 0; 3.) $f(x,t) \in L_2(Q_T)$.
Under the given conditions there exists a unique weak solution periodic in T with period T of the problem (9), (10).
Theorem 3: Let $\bar{D}$ belong to the class $A^{(2)}$; let in D be:

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Periodic solutions of boundary . . . S/020/61/141/006/004/021
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$a_{ij}(x) \in C^{(2,\lambda)}$ $b_i(x) \in C^{(1,\lambda)}$, $c(x) \in C^{(0,\lambda)}$, $-c(x) \geq c_o$ (c_o = = const > 0). Assume that $a(x,t)$, $\varphi(x,t)$ given on S are periodic in t with period T, assume that they are continuous together with their timely derivatives up to 4-th order inclusively, $a(x,t) \geqslant a_o$, a_o = = const > 0. Under these conditions there exists a unique classical solution periodic in t with period T of the problem

$$u_t = Lu \tag{13}$$

$$(\partial u/\partial \gamma - a(x,t)\, u)\Big|_S = \varphi(x,t), \tag{14}$$

where γ is the direction of the conormal to S.
There are 6 Soviet-bloc references and 1 non-Soviet-bloc reference.

ASSOCIATION: Voronezhskiy lesotekhnicheskiy institut (Voronezh Forestry-Engineering Institute)

PRESENTED: July 24, 1961, by S. L. Sobolev, Academician

SUBMITTED: July 10, 1961

Card 5/5

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S/020/62/142/001/006/021
C111/C444

AUTHOR: Shmulev, I. I.

TITLE: Bounded solutions to boundary value problems deprived of initial conditions for parabolic equations and the inverse boundary value problems

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 142, no. 1, 1962, 46-49

TEXT: Let D be a bounded domain in the space $x = (x_1, \dots, x_m)$; Γ be the boundary of D; $Q = D \times (-\infty, \infty)$; S be the superficies of Q; $Q_{[t_1, t_2]}$ be the part of Q between the planes $t = t_1$ and $t=t_2$, $t_2 > t_1$; $S_{[t_1, t_2]}$ be the superficies of $Q_{[t_1, t_2]}$. Let L be the elliptic operator

$$L \equiv \sum_{i,j=1}^{m} a_{ij}(x,t) \frac{\partial^2}{\partial x_i \partial x_j} + \sum_{i=1}^{m} b_i(x,t) \frac{\partial}{\partial x_i} + c(x,t),$$

where $\sum_{i,j=1}^{m} a_{ij}(x,t) \xi_i \xi_j \geqslant \alpha \sum_{i=1}^{m} \xi_i^2$, $a_{ij}(x,t) = a_{ji}(x,t)$ and $-c(x,t) \geqslant \geqslant c_0$ X

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for $(x,t) \in \overline{Q}$ and where α and c_o are positive numbers.

In Q the Dirichlet problem without initial conditions is considered

$$u_t = Lu + f(x,t) \qquad (1)$$

$$u\big|_S = \varphi(x,t) \qquad (2)$$

where by a solution one understands a classical solution. Proved is

Theorem 1: The coefficients of L, the bounded function f(x,t) and S be such that the boundary value problem

$$u_t = Lu + f(x,t),\ u\big|_{S_{[t_1,t_2]}} = \phi(x,t),\ u(x,\ t_1) = \Psi(x)$$

possesses a solution in every $Q_{[t_1,t_2]}$ for arbitrary continuous $\phi(x,t), \Psi(x)$ $(\Psi\big|_\Gamma = \phi)$. If then $\varphi(x,t)$ is continuous and bounded, then (1), (2) possesses a unique bounded solution in Q.

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If besides the coefficients of L, f(x,t) and $\varphi(x,t)$ are periodic with respect to t, then this solution has the same period (theorem 2).

Adjoining one considers the Neumann problem in Q

$$\left(\frac{\partial u}{\partial \gamma} - a(x,t)\, u\right)\Big|_S = \varphi(x,t) \quad (a(x,t) \geqslant a_0 = \text{const} > 0) \qquad (13)$$

where γ is the direction of the conormal. Theorem 3: Let S belong to the class $A^{(2)}$, the coefficients of L and the continuous bounded function a(x,t) be such that the boundary value problem

$$u_t = Lu, \ (\partial u/\partial \gamma - a(x,t)\, u)\Big|_{S_{[t_1,t_2]}} = \phi(x,t), \ u(x,t_1) = \Psi(x)$$

possesses a solution in $Q_{[t_1,t_2]}$ for arbitrary continuous $\phi(x,t)$, $\Psi(x)$. If then $\varphi(x,t)$ is continuous and bounded then (12), (13) possesses a unique bounded solution in Q.

If besides the coefficients of L, a(x,t) and $\varphi(x,t)$ are periodic with respect to t, then the solution is periodic as well and has the same

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period (theorem 4).

For the first boundary value problem

$$u_t = \sum_{i,j=1}^{m} a_{ij}(x,t,u)\frac{\partial^2 u}{\partial x_i \partial x_j} + \sum_{i=1}^{m} b_i(x,t,u)\frac{\partial u}{\partial x_i} + c(x,t,u)u+f(x,t) \quad (14)$$

$$u\big|_s = 0 \quad (s \in A^{(2,\lambda)}), \quad (15)$$

$$\sum_{i,j=1}^{m} a_{ij}(x,t,u)\xi_i \xi_j \geq \alpha \sum_{i=1}^{m} \xi_i^2 \text{ for } (x,t) \in \bar{Q} \text{ and } u \in (-\infty, +\infty);$$

$a_{ji} = a_{ij}$, $-c(x,t,u) \geq c_0$, it is proved

Theorem 5: There exists at least one bounded solution of (14), (15) in Q, if the following conditions are satisfied:

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1.) a_{ij}, b_i, c and its first four derivatives with respect to x, for $(x,t) \in \bar{Q}$, $|u| \leq C_0$ = const > 0 are continuous and bounded, and satisfy the Hölder condition in x, where $\max\limits_{(x,t,u)} |\partial a_{ij}/\partial u| \leq \alpha e \sqrt{3}/12 \, mC_0$.

2.) f(x,t) and its first four derivatives with respect to x are continuous and bounded.

In theorem 6 sufficient conditions for the existence of at least one bounded solution of the boundary value problem

$$u_t = a(x,t,u)_{xx} + b(x,t,u)u_x + c(x,t,u)u + f(x,t) \quad (16)$$

$$u_x(0,t) = \varphi_1(u(0,t),t) \quad (17)$$

$$u_x(1,t) = \varphi_2(u(1,t),t) \quad (18)$$

in the strip $Q = \{0 < x < 1, -\infty < t < +\infty\}$ are given.

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Theorem 7 and 8 refer to the connexion of the considered questions with the inverse problems, e. g. theorem 7 says that in case of the

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conditions of theorem 1 being satisfied in $Q^- = D \times (-\infty, 0]$ the inverse problem

$$u_t = Lu + f(x,t) \qquad (19)$$

$$u|_{S^-} = \varphi(x,t) \quad (t \in (-\infty, 0]) \qquad (20)$$

$$u(x,0) = \psi(x) \quad (\psi|_\Gamma = \varphi) \qquad (21)$$

possesses a bounded solution in Q^- if and only if the continuous function $\psi(x)$ is $\equiv u^-(x,0)$, where $u^-(x,t)$ is the solution of (19) (20) bounded in Q^-.

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X

SHMULEVICH, A.D.

Lead-zinc mineralization of Cretaceous sediments of southern Uzbekistan. Uzb.geol.zhur. no.6:5-17 '58. (MIRA 12:4)

1. Glavnoye upravleniye geologii i okhrany nedr pri Sovete Ministrov UzSSR.
(Uzbekistan—Lead ores)
(Uzbekistan—Zinc ores)

SHMULEVICH, A.D.

Mercury in sulfides from sedimentary deposits of the southwestern spurs of the Gissar Range. Uzb. geol. zhur. no.6:92-95 '60. (MIRA 14:1)

(Gissar Range—Mercury)

SHMULEVICH, A.D.

Pseudomorphism of sulfides of sedimentary origin. Uzb. geol. zhur. no.2:73-77 '61. (MIRA 14:5)

1. Sredneaziatskiy nauchno-issledovatel'skiy institut geologii i mineral'nogo syr'ya, Tashkent.
(Uzbekistan--Sulfides)

SHMULEVICH, A.D.

Sulfide-bearing clay inclusions in Cretaceous sediments of souther Uzbekistan. Uzb.geol.zhur. 6 no.1:26-34 '62.
(MIRA 15:4)

1. Sredneaziatskiy nauchno-issledovatel'skiy institut geologii i mineral'nogo syr'ya, Tashkent.
(Uzbekistan--Clay) (Uzbekistan--Sulfides)

SHMULEVICH, A.D.

Location of lead and zinc mineralization in the Mesozoic of southern Uzbedkistan. Zakonom. razm. polezn. iskop. 5:397-407 '62. (MIRA 15:12)

1. Sredneaziatskiy institut geologii i mineral'nogo syr'ya.
(Uzbekistan—Lead ores) (Uzbekistan—Zinc ores)

KHAMRABAYEV, I.Kh.; AKHMEDZHANOV, M.A.; BORISOV, O.M.; GAR'KOVETS, V.G.; SHMULEVICH, A.D.

Some characteristics of Cimmerian and Alpine metallogeny in Uzbekistan. Zakonom.razm.polezn.iskop. 7:295-299 '64. (MIRA 17:6)

1. Institut geologii AN UzbSSR; Glavnoye upravleniye geologii i okhrany nedr pri Sovete ministrov UzbSSR; Sredneaziatskiy institut geologii i mineral'nogo syr'ya.

[illegible], SH[illegible], A.D.

Seminar on the rare metals of Central Asia and Kazakhstan. Sov. geol. 7 no.10:162-163 O '64. (MIRA 17:11)

1. Sredneaziatskiy nauchno-issledovatel'skiy institut geologii i mineral'nogo syr'ya.

SHMULEVICH, A. G. and V. T. PONOMAREV.

Primenenie dvukhzakhodnykh cherviachnykh frez pri'narezanii zubchatykh koles.

(Vestn. Mash., 1951, no. 1, p. 37-40).

Includes bibliography.

(Use of double-thread hob cutters for gear cutting.)

DLC: TN4.V4

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

LISITSYN, S.V.; SHMULEVICH, A.G.

Movable prism for marking operations. Mashinostroitel' no.9:18
S '59. (MIRA 13:2)
(Marking devices)

SHMULEVICH, A.G.

Effect of a coned shape of hobbing cutters on their strength.
Stan.i instr. 31 no.2:35-37 F '60. (MIRA 13:5)
(Metal cutting tools)

SHMULEVICH, A.G.

Efficient use of the length of a worm hob in rough gear cutting. Stan.i instr. 33 no.2:26-29 F '62. (MIRA 15:1)
(Gear cutting)

SHMULEVICH, A.G.

Length of the axial incision in cutting spur gear wheels with hobbing cutters. Stan.i instr. 34 no.3:10-12 Mr '63. (MIRA 16:5)

(Gear cutting)